

ABSTRACT OF THE DISCLOSURE

A unit cell (10) of a readout integrated circuit is constructed and operated so as to temporally align an image obtained in a first spectral band with a an image obtained in a second spectral band. A method operates, during a frame period, to sub-frame average a first signal detected in the first spectral band by a multi-spectral detector (12), to sub-frame average a first signal detected in the second spectral band by the multi-spectral detector, and to sub-frame average a second signal detected in the first spectral band by the multi-spectral detector. The method then reads out the sub-frame averaged signals for each spectral band. The sub-frame averaged may be read out simultaneously from the unit cell. When sub-frame averaging the first and second signals in the first spectral band the method performs a plurality of consecutive sub-integrations and stores the result of each sub-integration on a first sub-frame averaging capacitance, and when sub-frame averaging the first signal of the second spectral band the method performs a single integration of the second signal, and stores the result of the integration on a second sub-frame averaging capacitance. The first spectral band may correspond to long wavelength infrared radiation (LWIR), and the second spectral band may correspond to medium wavelength infrared radiation (MWIR).